

## Contribution to Graphical Representation of the Selected Issues of the Labour Market

<sup>1</sup>Jiří Kraft, Sylvie Kotíková

### Abstract

**Purpose of the article:** A correct understanding of mechanisms governing the market is crucial for proper functioning of the labour market. The market structure phenomenon, so far most frequently described in the imperfect competition theory as a bilateral monopoly, occupies a unique position in this respect. The purpose of this paper is to specify the complexity of market structures in terms of the demand for labour and the consequences on wage rates and the number of employed labourers.

**Methodology/methods:** Applying the method of the graph theory.

**Scientific aim:** This paper aims to compare the resulting wage rate agreed upon by a trade union monopoly and oligopsony (both cooperative and non-cooperative) of employers, or a trade union monopoly and monopolistic competition of employers in contrast with a bilateral monopoly while using graphical tools.

**Findings:** In the Czech labour market context, 13 per cent of all employees, which means less than 700,000 people, are unionized. In 2023, 14 of the 15 largest employers in the Czech Republic had unions that bring together the employees of these companies. The food industry and the five basic foods – butter, milk, eggs, chicken, and flour – illustrate the oligopolistic market structure and the distribution of market power across the vertical: among farmers, in food production and in trade.

**Conclusions:** The impact of market structures on the resulting wage rate and the number of employed labourers is very noticeable and differs under monopsony, oligopsony, and monopsonistic competition. The type of market structure significantly affects the manoeuvring space for trade unions to negotiate a final wage rate in their position of an assumed labour supply monopoly.

**Keywords:** Labour market, monopsony, monopoly, oligopsony, oligopoly, monopolistic competition.

**JEL Classification:** D43, J01, J23, J42

---

<sup>1</sup> For the technical processing of the figures, sincere thanks go to Assoc. Prof. Aleš Kocourek, Ph.D.

## Introduction

The labour market represents an extremely interesting entity of the economic reality. Economics, however, pays less attention to the theoretical and graphical background of this partial market than to other economic phenomena, particularly in the area of market structures on the side of the demand for labour. It is the market structure determining the labour market or the demand for labour that can exert a considerable influence on the level of wage rates and the number of employees, but also on regional differences in income and, thus, spending of economic players on the demand side. The differences in wage rates will become obvious in cases where the employer is in a position of a monopsony or oligopsony – be it a cartel or oligopsony with a dominant firm – or under monopsonistic competition.

It is worth mentioning the current strength of union negotiations at the largest employer in the Czech business environment – Škoda Auto, a.s. with the number of employees approaching 35,000, where the unions at Škoda Auto negotiated a 5% wage increase in 2023 (Reporting Škoda Auto, a.s., 2024). The graphical representation of certain aspects of the demand for labour is absolutely convincing, be it an individual demand for labour of a monophonic company doing business in perfectly competitive labour and final production markets in both long and short-term contexts. The same applies to the question of individual demand for labour of a monophonic company operating in a perfectly competitive labour market and selling its production in an imperfectly competitive final production market both in the long and short term (Schuman, 1971; Brandt, 1972; Retz, 1988; Hyman, 1989; McConnell *et al.*, 1996; Leontaridi, 1998; Hořejší *et al.*, 2006; Brožová, 2016). In fact, the graph theory was only used to assess the demand for labour of a company with a monopsony position in the market regardless of the fact that the reality of the labour market differs.

Despite investigating the market of industrial products, Japanese economist Okuguchi (1998) was one of the first authors to deal with oligopsony. Both negative and positive impacts of oligopsony and oligopoly and their interdependence in the product market, not in the labour market, were analysed by Ferrer (2013). Brand *et al.* (2015) highlighted the impact of corporate social responsibility in the sense of Pareto efficiency that undoubtedly is reflected also in labour markets. At the same time, Bhaskar *et al.* (2002), just to give one example, emphasized the fact that oligopsony and monopsonistic competition provide a good explanation of many empirical phenomena in the labour market. Also, Naylor (1996) dealt with oligopsony in the labour market, specifically in relation to an employer's misuse of power.

The creation and development of trade unions, however, leads to limiting the employer's misuse of power, which also reflects the situation of the largest employers on the Czech labour market, when, as part of the investigation, strong trade unions operate in the ten largest employers (Ministry of Justice, 2023)

Bhaskar *et al.* (2003) investigated the wage rate structure in the labour market under oligopsonistic competition.

The demand for labour is specific as it is derived from the demand for products that are produced with the labour and Park *et al.* (2016), among other authors, emphasized the fact that the demand for labour is a derived demand. While applying graph theory analysis, the economic theory not only deals with an individual's supply of labour, but also with the perfectly and imperfectly competitive market supply of labour.

A variant of the Hicksian bilateral monopoly model (Hicks, 1963) was developed by Hieser (1970), critically analysed by Johnston (1972) and further elaborated by Dogas (2006). Specific problems of bilateral monopoly under the conditions of the contemporary Russian economy were dealt with by

Shastitko *et al.* (2017). Hirsch *et al.* (2017) investigated the impact of the cyclic dynamics on the monopsony power as exemplified by the German economy. Devitt (2018) dealt with the modifications of the Italian labour market in the last third of the 20<sup>th</sup> century, including considerations on the migration phenomenon. Empirical evidence suggests that the bargaining power of unions varies across firms and industries. It can be assumed that the bargaining power of unions is specific to a given firm and varies depending on the firm's productivity (De Pinto, Michaelis, 2019).

The reality of a bilateral monopoly has been constructed as shown in Figure 1.

A  $w_1$  is the wage rate offered by the monopsony of employers, while  $w_2$  is the wage rate required by the trade union monopoly. It also corresponds to the number of employees  $L_1$  the monopsony is willing to employ for the  $w_1$  rate, and  $L_2$  is the number of employees requested by the trade unions to be employed for the  $w_2$  rate. The compromise

achieved depends on the power of participants in the bilateral monopoly.

Current examples of bilateral monopolies in the case of the Czech labour market include the largest steel producer in the Czech Republic – Třinecké železářny against the trade union KOVO (Odbory Třineckých železářen, 2024). Furthermore, the largest employer in the Czech business environment – Škoda Auto, a.s. against the KOVO MB Trade Union (Reporting Škoda Auto, a. s., 2024) or the fourth largest employer, Česká pošta, against the Corporate Coordination Trade Union Committee Česká Pošta (Odbory České pošty, 2024). An analogous case can also be found in Deutsche Post v. Deutsche Postgewerkschaft (Deutsche Post, 2024).

So far, very little attention has been paid to the reality of oligopsony in the labour market, be it in the form of a cartel or dominant firm oligopsony, or monopsonistic competition that occur in the market in relation to the trade union monopoly. What is completely

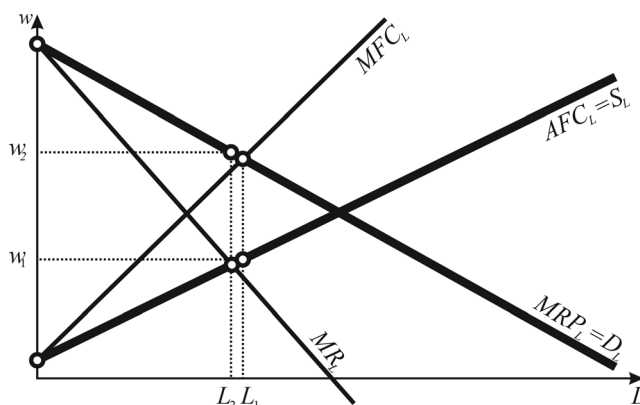


Figure 1. Optimum of bilateral monopoly. Source: Kraft *et al.*, 2013.

Legend:

- $MFC_L$  – marginal factor costs of labour
- $AFC_L$  – average factor costs of labour
- $S_L$  – supply of labour
- $MRP_L$  – marginal revenue product of labour
- $D_L$  – demand for labour
- $MR_L$  – marginal revenue
- $w_i$  – wage rate
- $L_i$  – number of labourers

missing is a graphical representation of a variant of the demand for work other than monopsony, *i.e.* oligopsony – either cooperative or non-cooperative – and monopsonistic competition.

The purpose of this paper is to compare the resulting wage rate agreed upon by a trade union monopoly and oligopsony (both cooperative and non-cooperative) of employers, or a trade union monopoly and monopolistic competition of employers in contrast with a bilateral monopoly while using graphical tools.

## 1. Methodology

Generally, the economic reality is not a reflection of the reality of one employer, and in a united Europe even less so, and it can also be attributed to the ever-increasing mobility of employees. The fact that there are more potential employers in the area and industry of interest of potential employees requires, for the sake of economic theory, more than just expressing this economic practice verbally. When dealing with imperfect competition, the aforementioned variants of the demand for labour, except monopsony, should be investigated first.

Henceforth, the explanation that the final wage rate depends on the power of a trade union monopoly and monopsony of employers will not suffice.

Different agreed upon wage rates – for the benefit of a trade union monopoly – are assumed for market structures of an oligopsony and monopsonistic competition, specifically in the case of the demand for labour. It should be mentioned that a trade union organisation need not have a monopoly position in the labour market, however this is not the focus of this paper.

The graph theory analysis is the main applied method, the essential importance of which was emphasized by Spanish experts from the University of Alicante

Llorent-Climent *et al.* (2016): “*Graph theory is a fundamental tool in the study of economic issues... If an economic system has obtained a suitable model, then it becomes possible to utilize relevant mathematical tools, such as graph theory, to better understand the way the labour market works.*”

## 2. Results

In the Czech Republic, 13% of all employees were unionized by 2023, which means less than 700,000 people (CZSO, 2024). The greatest strength of trade unions, or the influence of their negotiations in the regional context, can be seen at the largest Czech employer, Škoda Auto, a. s. which employed 34,884 in 2023 (Reporting Škoda Auto, 2024). Due to the fact that this employer operates regionally (manufacturing plants are concentrated in the Central Bohemian and Hradec Králové regions), the influence of wage negotiations leads to significant regional changes and influences on local labour markets. The research results (presented in Table 1) of the 15 largest employers in the Czech Republic for the year 2023 operate mostly in all regions of the Czech Republic. At the same time (except Energetický a průmyslový holding, a. s.), trade unions figure in all of them. It follows from the subject matter that the action of unions and the results of their wage negotiations are enforced equally in all regions due to the distribution of employees, in contrast to Škoda Auto a. s. and Dopravní podnik hlavního města Prahy, a.s., whose results of union activity are regional, or locally.

### 2.1 Oligopsony in the labour market

According to the CZSO (2024), there were 2,401 companies with more than 250 employees operating in the Czech business environment.

Oligopsony is an advantage very few companies enjoy in terms of demand, in this case in terms of the demand for labour. It may be

either in a cooperative form of cartel (usually illegal agreement), or in a non-cooperative form of dominant firm oligopsony. The risk of oligopoly structures is the oppression of smaller players who have worse bargaining power.

### 2.1.1 Cartel in the labour market

Cartel agreements are illegal in many countries of the world, which however does not necessarily mean that they will not occur, as is the case with many other illegal activities.

The Office for the Protection of Competition (2024) detected and punished nine prohibited agreements in 2021, six related to the most serious horizontal cartels. The highest fine in the field of horizontal cartels, exceeding seventy million crowns, was imposed by the Antimonopoly Office on seven companies due to a cartel agreement in the field of information technology. The companies used their contacts and divided among themselves not only the fulfilment of the order for the development of e-government services

Table 1. 15 largest employers in the Czech Republic.

Company	Number of employees in 2023	Industry	Trade union organisation	Regions
Škoda Auto, a.s.	34 884	Automotive	Odbory KOVO MB	Central Bohemian Region, Hradec Králové Region
ČEZ, a.s.	30 600	Energy	OS ECHO	All regions of the Czech republic
Kaufland Česká republika, v.o.s.	25 000	Retail	Unie zaměstnanců obchodu	All regions of the Czech republic
Česká pošta s.p.	23 425	Postal services	P KOV	All regions of the Czech republic
České dráhy, a.s.	21 823	Railway company	Odborové sdružení železničářů	All regions of the Czech republic
Agrofert, a.s.	20 445	Agriculture, food, chemicals, mass media	OS KOVO	All regions of the Czech republic
Správa železnic, s.o.	17 021	Infrastructure	Odborové sdružení železničářů	All regions of the Czech republic
Albert Česká republika s.r.o.	16 900	Retail	Unie zaměstnanců obchodu	All regions of the Czech rep.
Lidl Česká republika v.o.s.	12 000	Retail	Unie zaměstnanců obchodu	All regions of the Czech republic
Dopravní podnik hlavního města Prahy, a.s.	11 214	Public transport	Odbory DP Praha	The Capital City of Prague, Central Bohemian Region
Energetický a průmyslový holding, a.s.	10 967	Energy	–	All regions of the Czech republic
Česká spořitelna, a.s.	9 829	Bank	OS PPP	All regions of the Czech republic
AGEL, a.s.	9 000	Healthcare	OS ZSP ČR	All regions of the Czech republic. except for Karlovy Vary Region, Liberec Region, South Bohemia Region and Vysočina Region
ČSOB, a.s.	8 035	Bank	OS PPP	All regions of the Czech republic
Komerční banka, a.s.	7 551	Bank	OS PPP	All regions of the Czech republic

Sources: Ministry of Justice, 2023.

in the Olomouc Region but also participated in the formulation of the tender. The companies Autocont, Tesco SW, Merit Group, ICZ, Asseco Central Europe, FPO, and A-Scan concluded the prohibited agreement. Another case includes SPIE Elektrovod and ASE for the manipulated division of contracts at ČEPS. Dereza and Auböck for manipulating a public contract worth CZK 80 million in Kralupy n.V. Cartel agreements did not avoid the preparation of the construction of a high-speed railway. In the end, only Sudop Praha will pay the nine million fine, and the Railway Research Institute got out of the obligation when it provided evidence of the cartel agreement. One of the most severe punishments was imposed on the company Expres van, which, in addition to the fine, is banned from participating in public

procurement for two years. The antimonopoly authority issued such a ban for the first time in history. The company was guilty of coordinating bids with Lorenc Logistic in two tenders of the Railway Administration for the transport of business packages. A garden equipment distributor received a fine exceeding 96 million crowns for setting prices for resale to its customers.

A cartel agreement in the labour market can be based on an agreement among employers regarding their willingness to employ candidates with certain qualification and pay a certain wage rate for their work. Cartels can be both stable and unstable. For the purpose of this paper a stable cartel is considered.

Companies agree upon the wage rate  $w_K$  (see Figure 2) defined by the point of intersection of  $MFC_L$  and  $\Sigma MRP_L$  as it is projected

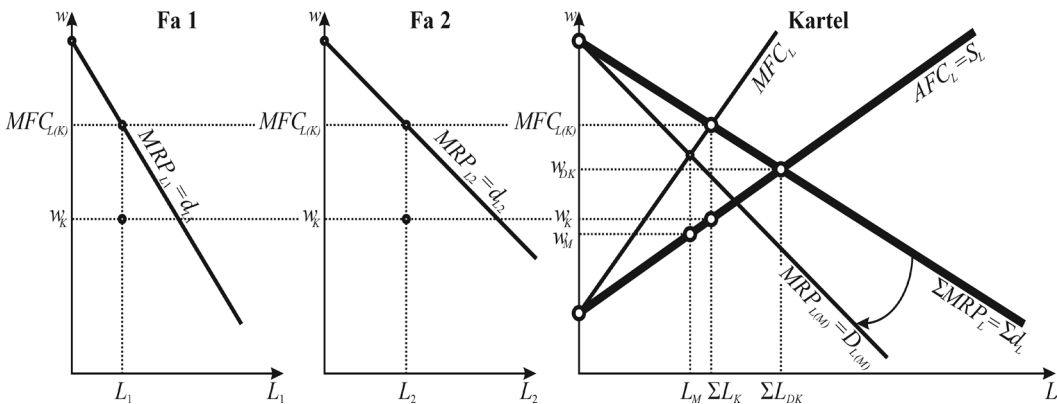


Figure 2. Cartel vs. monopsony vs. perfect competition in the labour market.

Source: Author's own elaboration.

Legend:

- $Fa$  – firm
- $MFC_L$  – marginal factor costs of labour
- $AFC_L$  – average factor costs of labour
- $S_L$  – supply of labour
- $MRP_L$  – marginal revenue product of labour
- $d$  – labourers in demand by a cartel firm
- $D_L$  – demand for labour
- $MR_L$  – marginal revenue
- $w_i$  – wage rate
- $L_i$  – number of labourers
- index  $K$  – cartel
- index  $DK$  – perfect competition
- index  $M$  – monopsony

to  $S_L$  – the curve showing what the wage rate is still feasible for the required number of labourers – and they will accept that rate. The rate will be lower than a rate that would be established in the labour market if no cartel existed in the market and perfect competition prevailed, *i.e.* the wage rate would be  $w_{DK}$ . The difference between the wage rates  $w_{DK}$  and  $w_K$  is the effect of the employers' cartel agreement. Moreover, fewer people would be employed compared to the number of people employed in the case of perfect competition in the labour market and the difference would be  $\Sigma L_K - \Sigma L_{DK}$ . Thus, the employee is disadvantaged in the labour market. The reason for this is that the offered wage rate was determined in the same way as in the case of monopsony and also its adjustments made by a trade union monopoly will

probably be the same. If, on the other hand, the cartel broke up because one of the companies left the market and only one company remained in the market, a monopsony would be established and the demand for labourers would drop to  $L_M$  while the wage rate would decrease to  $w_M$ . A cartel of employers would, in this respect, provide a relative advantage for employees.

### 2.1.2 Dominant firm oligopsony in the labour market

Oligopsony with one dominant firm is an arrangement where there is usually one significantly more advanced company among a group of companies. This company has a decisive power and dominates other companies in the competitive fringe mainly through setting the price of labour. Firms in the compe-

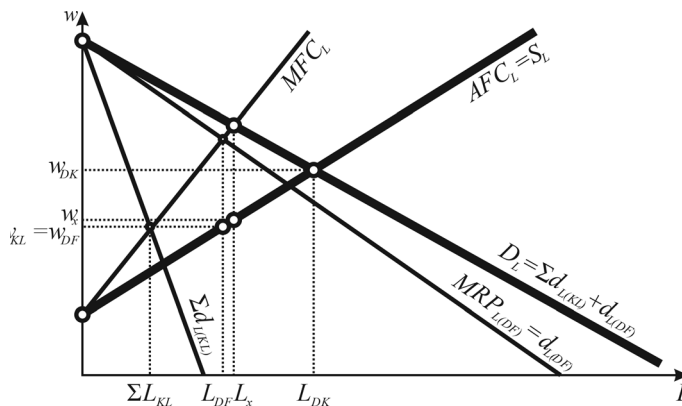


Figure 3. Dominant firm oligopsony vs. monopsony in the labour market.

Source: Author's own elaboration.

*Legend:*

- $MFC_L$  – marginal factor costs of labour
- $AFC_L$  – average factor costs of labour
- $S_L$  – supply of labour
- $MRP_L$  – marginal revenue product of labour
- $d$  – labourers in demand by a cartel firm
- $D_L$  – demand for labour
- $w_i$  – wage rate
- $L_i$  – number of labourers
- index  $KL$  – competitive fringe
- index  $DK$  – perfect competition
- index  $DF$  – dominant firm
- index  $x$  – magnitude modified by the dominant firm



titive fringe are price takers and subordinate to the dominant firm without reservations – see Figure 3.

Azar and Vives (2021) point out that large firms (in an oligopolistic market structure) have market power with respect to both products and labour. In the Czech business environment, oligopolies exist in the food market. According to the Office for the Protection of Economic Competition (2024), an oligopolistic market structure was identified for five basic foods: butter, milk, eggs, chicken, and flour.

In milk production, there is an oligopoly in the entire vertical. The strongest player is Mléko.CZ družstvo with a share of 15 to 25 percent. Up to half of the market to which these cooperatives sell milk for processing into dairy products is controlled by the Pragolaktos and Agrofert dairies, including the Olma dairy and the Mlékárna Hlinsko (Tatra brand). According to the Office for the Protection of Economic Competition data (2024), this structure is significantly oligopolistic. The three largest competitors occupy 60 % of the market and the five largest are almost three-quarters of the market. Even if the barriers to entry into the raw cow's milk production industry can be assessed as low, the emergence of a competitor with a significant market share could probably only occur through a merger or acquisition.

The fresh milk market is dominated by Moravia Lacto and Alimpex Food, with a dominant overall position of 50%, followed by Agrofert, Bohemilk and Lactalis CZ (Kunín brand) – each with a market share of up to 15%. This means the five largest dairies hold 80 % of the fresh milk market (ASZ, 2023).

A similar situation exists in the egg market, where 35 to 45 % of eggs in Czech stores come from only four companies with the same owner, as according to the Office for the Protection of Economic Competition data (2024), the enterprises Proagro Nymburk, OVUS, Česká vejce, and Velkochov in

Kosičky are owned by the same owner. The companies Rabbit Trhový Štěpánov and Agropodnik Hodonín (Agrofert) follow with similar estimates of market shares (5–15%).

70% of the butter production market is occupied by the following companies: Milkopol, Madeta, Alimpex, and Agrofert (of which 25–35% goes to Milkopol alone). The created barriers to entering the industry are mitigated by strong imports, where up to half of the butter consumed in the Czech Republic is imported from abroad.

The dominant company on the chicken meat market is Výkrm Třebíč of the Agrofert Group, whose market share varies between 25–35%, followed by Xaverov (15–25%) controlled by the family of former Minister of Agriculture Miroslav Toman and Mach drůbež with the same market share (15–25%). Among broiler processors, Vodňanská drůbež dominates with 25 to 35% of the market. Two other players have a share of up to fifteen per cent: Drůbežářský závod Klatovy and Rabbit Trhový Štěpánov.

GoodMills Česko and Malitas have a 50% share of the flour market. Another six companies occupy almost the remaining 50% of the market share. In other words, eight players make up practically the entire market (!).

The long-discussed oligopolistic market structure can undoubtedly be identified in retail chains. According to the Herfindahl-Hirschman index of calculated market shares of companies, the four largest companies (or six chains) control three-quarters of the market. Specifically, Kaufland and Lidl (or the Schwarz Group) occupy a third of the share of the Czech market (32%), followed by Billa and Penny Market (or REWE) with 19%, Albert with 15% and Tesco with 11% (ASZ, 2023).

The implications of an oligopoly in the food sector on labour market outcomes, such as wages and employment rates, can be understood through the lens of market



concentration and its effects on labour dynamics. An oligopoly, characterized by a few dominant firms, can exert significant market power, influencing both wages and employment opportunities. Research indicates that increased market concentration, a hallmark of oligopolistic markets, can negatively impact labour market outcomes.

The dominant firm sets the wage rate  $w_{DF}$  (see Figure. 3) at the same rate as the one determined by a monopsony and employs  $L_{DF}$  labourers. There is, however, a competitive fringe in addition to the dominant firm; the competitive fringe accepts the level of  $w_{DF}$  and decides to employ  $L_{KL}$  labourers with regard to a lower marginal revenue product of labour. Thus, the number of labourers employed is the sum of  $L_{DF} + LL_K$ , *i.e.* the sum of the number of labourers needed by the dominant firm and also by the firms in the competitive fringe. The sum of the needed labourers is then  $\Sigma D_L$  and should the dominant firm seek to be at its optimum by employing the required number of labourers, *i.e.* the optimum number for doing its business, it will have to increase the wage rate  $w_{DF}$  in order to cope with the demand for labourers now increased by the firms in the competitive fringe and the wage rate will be higher than the rate set by the dominant firm, thus reaching  $w_x$ . The truth is that, as a consequence, the number of employees working for the competitive fringe firms will decrease, which is not noticeable in Figure 3, and the wage rate will decrease slightly as a result.

As long as there is a competitive fringe, the wage rate in an oligopsony with a dominant firm will always be higher than in a monopsony. On the other hand, the wage rate set by a dominant firm will be lower than the rate that would occur under perfect competition on the intersection of the supply of labour  $S_L$  and the demand for labour  $D_L(w_{DK})$  and, moreover, even more labourers  $L_{DK}$  would be employed under perfect competition. Perfect competition in the labour market is only suppositional and, therefore, compared

to a monopsony, a dominant firm oligopsony provides a relative advantage for employees.

## 2.2 Monopsonistic competition in the labour market

Monopsonistic competition is a situation where a large number of employers, none of them having any advantage over the others, compete for labourers in the labour market. The establishment of the amount, or the rate, acceptable for each and every firm under monopsonistic competition as remuneration paid to their labourers will be the same as under monopsony, totalling  $w_{MK}$ , and also the process of establishing the number of labourers employed by one firm ( $L_{MK}$ ) will be the same as shown in Figure 4.

While the wage rate and the number of employees are established in the same manner, the outcome will not be the same. For labourers in all firms, the situation under monopsonistic competition will be even worse as the marginal revenue product of labour accrued by these firms will be lower than under monopsony. Moreover, each firm doing business under monopsonistic competition will employ fewer labourers than a monopsony firm. Nevertheless, there are numerous firms in the monopsonistic labour market that, as a result, will change the suggested situation mainly in terms of employed labourers in favour of monopsonistic competition. When explaining the wage rate, positive aspects of monopsonistic competition as they are enjoyed by a labourer cannot be understood without taking the supply of labour, or trade union monopoly, into consideration. Once trade unions get involved in decision-making on the wage rate, the difference will be in favour of employees as the position of each firm under monopsonistic competition is significantly weaker than in cases where trade unions negotiate with a big corporation – a monopsony. Small firms under monopsonistic competition will find it extremely hard to resist the pressure of trade unions for high wage rates. The theoretical

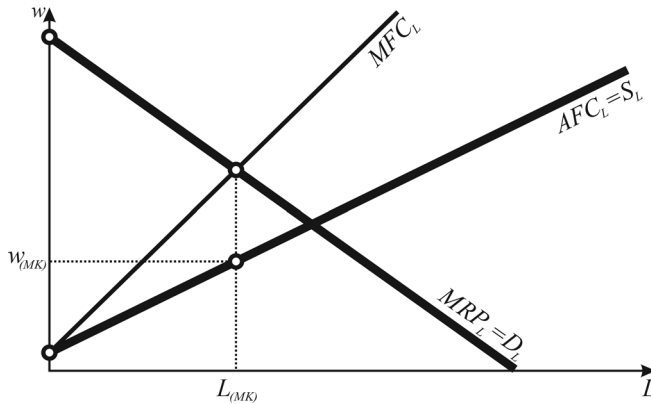


Figure 4. Monopsonistic competition in the labour market. Source: Author's own elaboration.

Legend:

- $MFC_L$  – marginal factor costs of labour
- $AFC_L$  – average factor costs of labour
- $S_L$  – supply of labour
- $MRP_L$  – marginal revenue product of labour
- $D_L$  – demand for labour
- $w_i$  – wage rate
- $L_i$  – number of labourers
- index MK – monopsonistic competition

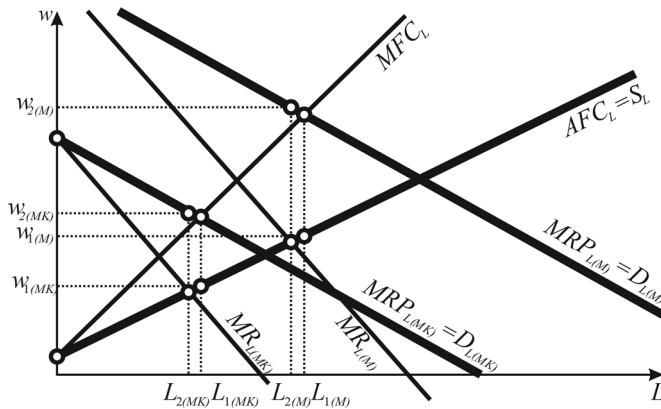


Figure 5. Comparison of bilateral monopoly with its modification under monopsonistic competition on the side of the demand for labour. Source: Author's own elaboration.

Legend:

- $MFC_L$  – marginal factor costs of labour
- $AFC_L$  – average factor costs of labour
- $S_L$  – supply of labour
- $MRP_L$  – marginal revenue product of labour
- $D_L$  – demand for labour
- $w_i$  – wage rate
- $L_i$  – number of labourers
- index MK – monopsonistic competition
- index M – monopsony

basis given above can be represented graphically – please refer to Figure 5.

The interval, in which negotiations between the monopsonistic competition on the side of the demand for labour and the trade union monopoly will take place, will remain a reality and will range from  $w_{I(M)}$  to  $w_{2(M)}$  for the monopsony and from  $w_{I(MK)}$  to  $w_{2(MK)}$  for firms under monopsonistic competition – refer to Figure 5 above. In the environment of monopsonic competition on the side of the demand for labour the wage rate can be higher than  $w_{I(M)}$  – the wage claim of monopsony. It is the growth of the number of labourers employed that is the main advantage of monopsonistic competition enjoyed by employees.

### 3. Discussion

Oligopolies significantly influence wage bargaining in labour markets through mechanisms of market concentration and bargaining dynamics. Mergers among firms can lead to reduced competition, enabling employers to suppress wages, as they may coordinate actions to lower labour costs without fear of losing employees to competitors. This suppression is exacerbated in oligopolistic settings where few employers dominate the market, creating a high concentration that can facilitate collusion in wage-setting practices. Marinescu *et al.* (2019) found that a 10% increase in labour market concentration decreases hires by 3.2% and hourly wages by nearly 0.5%. This aligns with monopsony theory, where fewer employers in a market can lead to less competitive wages and fewer job opportunities.

Moreover, the dynamics of wage bargaining are affected by the bargaining power of firms versus unions. Increased bargaining power for firms can accelerate wage negotiations in their favour, often disadvantaging unionized workers (Guerrazzi, 2021). Additionally, oligopolistic competition can lead

to unequal income distribution, which may further impact wage negotiations by shifting the balance of power away from workers (Kumar *et al.*, 2020). Thus, oligopolies create a complex interplay that can lead to wage rigidity and inequitable outcomes in labour markets.

Unions representing collective interests can increase the bargaining power of workers, which can lead to more favourable wage agreements and working conditions. This collective action can counterbalance the monopolist's influence and create a fairer distribution of resources. However, the effectiveness of unions in this context may depend on their ability to effectively organize and mobilize workers. While unions can negotiate better terms, the underlying market structure and strategies of monopolists can still limit their power. Thus, while unions can empower workers in a bilateral monopoly, their success depends on the broader economic environment and the specific characteristics of the monopoly involved (Busetto, 2023).

### 4. Conclusion

The labour market is very complex in respect to the existing market structures. A common approach showing a bilateral monopoly where a trade union monopoly on the side of the supply of labour oppose to an employer's monopsony on the side of the demand for labour is not sufficient to explain a specific situation. Each party has an advantage and they try to use it during negotiations on specific wage rates. A compromise seems to be probable. Whenever there is no monopsony on the part of employers, trade unions as a monopoly are in a stronger position than employers, no matter whether the oligopsony on their part is cooperative or non-cooperative, and the trade unions' position is even more advantageous in situations when employers are under monopsonistic competition. Trade

unions take this advantage in association with the establishment of a wage rate; in terms of the demand for labour the rate will always be higher in market structures other than monopsony as trade unions are more powerful there. As shown in the figures above, employees will also benefit from a higher number of people employed. This paper disregards the fact that in real life trade unions do not always have a monopoly in the supply of labour, as there are often more trade union organisations. In real life, this would also be an oligopoly, be it cooperative oligopoly (cartel) provided that trade unions are able to reach an agreement, or non-cooperative (dominant firm oligopoly) provided that one union is in a dominant position. A situation may occur where there are many trade unions with approximately the same power and that would be a market structure known as monopolistic competition. In the labour market, this can result in a bilateral monopoly,

bilateral oligopoly, or bilateral monopolistic competition. This means that in the first case trade unions have a monopoly while employers have a monopsony, in the second case trade unions are in a position of oligopoly while employers are in oligopsony, and in the third case trade unions represent monopolistic competition while employers are in a position of monopsonistic competition. In real life, however, even combinations of the aforesaid market structures are possible.

New models of labour migration are changing the shape of labour markets and bringing new challenges for labour market actors, including trade unions. especially for unions. In the future, it will be necessary to address not only economic-social-political issues related to wage negotiations, but also organizational changes associated with integrating migrant workers into unions and the potential role of unions in building transnational ties and cohesion in border regions.

## References

- Asociace soukromého zemědělství [Association of Private Farming]. (2023). *Oligopoly v Česku. Kdo ovládá většinu trhu s potravinami a proč to škodí. Asociace soukromého zemědělství*. [Oligopoly in the Czech Republic. Who controls most of the food market, and why is it harmful? Association of Private Farming]. Retrieved from: <https://www.asz.cz/clanek/11015/oligopoly-v-cesku-kdo-ovlada-vetsinu-trhu-s-potravinami-a-proc-to-skodi/>.
- Azar, J., Vives, X. (2021). General Equilibrium Oligopoly and Ownership Structure. *Econometrica*. 89(3), pp. 999–1048. DOI:10.3982/ECTA17906.
- Bhaskar, V., To, T. (2003). Oligopsony and the distribution of wages. *European Economic Review*, 47(2), pp. 371–399. DOI:10.1016/s0014-2921(01)00180-5.
- Bhaskar, V., Manning, A., To, T. (2002). Oligopsony and monopsonistic competition in Labor Markets. *Journal of Economic Perspectives*, 16(2), pp. 155–174. DOI:10.1257/0895330027300.
- Brand, B., Grothe, M. (2015). Social Responsibility in a bilateral monopoly. *Journal of Economics*, 115(3), pp. 275–289. DOI:10.1007/s00712-014-0412-6.
- Brandt, K., Köhler, W., Schulz, W. (1972). *Mikroökonomie. Freiburg: Rombach+Go GmbH*.
- Brožová, D. (2016). Utváření moderní ekonomie trhu práce: neoklasické paradigma s institucionálními teoriemi. [Forming the Modern Labour Market Economics: On the Role of Institutional Theories]. *Acta. Oecon.Prag.* 6, pp. 56–68. DOI:10.18267/j.aop.562.
- Busetto, F., Codognato, G., Ghosal, S., Turchet, D. (2023). On the foundation of monopoly in bilateral exchange. *International Journal of Game Theory*. DOI:10.1007/s00182-023-00847-2.
- CZSO (2024). *Počet, struktura a projekce obyvatel. [Population number, structure and projection]*.

- Retrieved from: <https://csu.gov.cz/pocet-struktura-a-projekce-obyvatel?pocet=10&start=0&podskupiny=132&razeni=-datumVydani>.
- De Pinto, M., Michaelis, J. (2019). The labor market effects of trade union heterogeneity. *Economic Modelling*, Year 78, pp. 60–72. DOI:10.1016/j.econmod.2018.08.017.
- DeutschePost.de. (2024). *Deutsche Post*. Retrieved from: <https://www.deutschePost.de/en/home.html>.
- Devitt, C. (2018). Shaping labour migration to Italy: The role of Labour Market Institutions. *Journal of Modern Italian Studies*, 23(3), pp. 274–292. DOI:10.1080/1354571x.2018.1459408.
- Dogas, D. (2006). Market power in a bilateral monopoly model of industry wage determination. *Applied Economics*, 17(1), pp. 149–164. DOI:10.1080/00036848500000014.
- Ferrer, C. E. (2013). Oligopsony-oligopoly the Perfect Imperfect Competition. *Procedia Economics and Finance*, 5, pp. 269–278. DOI:10.1016/s2212-5671(13)00033-6.
- Guerazzi, M. (2021). Wage bargaining as an optimal control problem: a dynamic version of the efficient bargaining model. DOI:10.1007/S10203-021-00326-X.
- Hicks, J. R. (1963). *The theory of wages*. 2<sup>nd</sup> ed. London: Macmillan. 388 pp.
- Hieser, R. O. (1970). Wage determination with bilateral monopoly in the Labour Market: A theoretical treatment. *Economic Record*, 46(1), pp. 55–72. DOI:10.1111/j.1475-4932.1970.tb02464.x.
- Hirsch, B., Jahn, E. J., Schnabel, C. (2017). Do employers have more monopsony power in Slack Labor Markets? *ILR Review*, 71(3), pp. 676–704. DOI:10.1177/0019793917720383.
- Hořejší, B., Soukupová, L., Macáková, L., Soukup, J. (2006). *Mikroekonomie [Microeconomics]*. Prague: Management Press. 584 pp.
- Hyman, D. N. (1989). *Modern microeconomics*. Boston: Irwin. 37 pp.
- Johnston, J. (1972). A model of wage determination under bilateral monopoly. *The Economic Journal*, 82(327), pp. 837. DOI:10.2307/2230254.
- Kraft, J., Bednářová, P., Kocourek, A. (2013). *Mikroekonomie II [Microeconomics II]*. 2<sup>nd</sup> ed. Technical University of Liberec. 193 pp.
- Kumar, R. R., Stauvermann, P. J. (2020). Economic and Social Sustainability: The Influence of Oligopolies on Inequality and Growth Sustainability. DOI:10.3390/SU12229378.
- Leontaridi, M. (1998). Segmented labour markets: theory and evidence. *J. Econ Surv*, 12, pp. 103–109. DOI:10.1111/1467-6419.00048.
- Lloret-Climent, M., Nescolarde-Selva, J. A., Mora-Mora, H., Signes-Pont, M. T. (2016). A new network perspective in the study of Labour Markets. *Mathematical Methods in the Applied Sciences*, 41(6), pp. 2261–2268. DOI:10.1002/mma.4208.
- Marinescu, I., Hovenkamp, H. J. (2019). Anticompetitive Mergers in Labor Markets. *Indiana Law Journal*, 94(3).
- McConnell, C. R., Brue, S. L. (1996). *Economics principles problems, and policies*. New York: Mc Graw-Hill. 786 pp.
- Ministry of Justice (2023). *Veřejný rejstřík a sbírka listin [Public Register and Collection of Documents]*. Retrieved from: <https://or.justice.cz/ias/ui/rejstrik>.
- Naylor, R. (1996). Discrimination as collusion in imperfectly competitive Labour Markets. *LABOUR*, 10(2), pp. 447–455. DOI:10.1111/j.1467-9914.1996.tb00093.x.
- Odbory.tz.cz [Třinecké železářny Unions]. (2024). *Základní organizace odborového svazu Třinecké železářny [Organization of the Trade Union of Třinecké železářny]*. Retrieved from: <https://odborytz.cz>.
- Odboryceskeposty.cz [Czech Post Unions]. (2024). *Podnikový koordinační odborový výbor Česká pošta [Company Coordination Union Committee Czech Post]*. Retrieved from: <https://www.odborceskeposty.cz/>.
- Office for the Protection of Competition (2024). *Výroční zprávy [Annual reports]*. Retrieved from: <https://uohs.gov.cz/cs/informacni-centrum/vyrocnizpravy.html>.
- Okuguchi, K. (1998). Existence of equilibrium for Cournot oligopoly–oligopsony. *Keio. Econ. Stud.* 35, pp. 45–53.
- Park, S., Chung, C., Raper, K. C. (2016). Modelling upstream and downstream market power in bilateral oligopoly. *Applied Economics*, 49(10), pp. 1016–1031. DOI:10.1080/00036846.2016.1210768.
- Reporting.skoda-auto.cz. (2024). *Škoda report*

2023. Retrieved from: <https://reporting.skoda-auto.cz/>.

Retz, N. (1988). *Grundzüge der Mikroökonomischen Theorie*. [Fundamentals of Microeconomics Theory]. St. Gallen: Verlag Wilhelm Surbik. 329 pp.

Schumann, J. (1971). *Grundzüge der*

*Mikroökonomischen Theorie*. [Fundamentals of Microeconomics Theory]. Berlin: Springer Verlag. 336 pp.

Shastitko, A., Pavlova, N. (2017). Antitrust in bilateral monopoly. *Voprosy Ekonomiki*, 8, pp. 75–91.

**Received: 29. 8. 2024**

**Reviewed: 27. 11. 2024**

**Accepted: 6. 12. 2024**

**prof. Ing. Jiří Kraft, CSc.**

Charles University  
Faculty of Physical Education and Sport  
Department of Sport Management  
José Martího 31, 162 52 Prague 6  
Czech Republic  
Phone: + 420 220 172 032  
E-mail: [jiri.kraft@ftvs.cuni.cz](mailto:jiri.kraft@ftvs.cuni.cz)

**Ing. Sylvie Kotíková, Ph.D.**

Jan Evengelista Purkyně University  
Faculty of Social and Economic Studies  
Department of Economics and  
Management  
Moskevská 54, 400 96 Ústí nad Labem  
Czech Republic  
Phone: +420 475 284 728  
E-mail: [sylvie.kotikova@ujep.cz](mailto:sylvie.kotikova@ujep.cz)